

## INCORPORATION OF SLIDE-MOUNTED MATERIAL INTO ENTOMOLOGICAL COLLECTIONS<sup>1</sup>

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**ABSTRACT:** A polypropylene slide box is described and illustrated. Details are given on how to incorporate slide-mounted material into collections of pinned insects or into collections preserved in alcohol.

Slide-mounted material usually consists of genitalic structures or other parts of prime importance in the identification of specimens. Unfortunately, this critical material is usually stored separately, and consequently is often neglected or ignored, and is sometimes misplaced or even lost. This duplication in storage increases the risk of loss of either the dissected parts or the original specimens. Different codes (often changing with years) used by different scientists make the retrieval of the material more complicated, if not impossible. Another problem with the slide-mounted material is actually related to the fact that for some groups of insects this mounting technique is not used any more. For example, male aedeagi or female spermathecae of beetles are now mounted on transparent plastic plates pinned directly under the specimens instead of being mounted on slides. In the Canadian National Collection (CNC), as in other museums, there are hundreds of old slide-mounted genitalia of beetles or other insects which have to be incorporated into the main collection or stored in one way or another. On the other hand, the small plastic boxes are not recommended for large collections of insects where almost all specimens are mounted on slides (Chironomidae, Ceratopogonidae, mites, etc.).

The aim of the present paper is to describe a convenient type of microscope slide box, and to explain how some of the problems exposed above can be solved using it. As pointed out by an anonymous reviewer this type of slide box is not really "new" (since, according to his comments, these boxes have been used at the USNM for the curation of several families of Diptera for more than ten years) but it is the first time that its utilization is thoroughly discussed.

### DESCRIPTION

The Marin Laboratory Supply<sup>R</sup> (MLS) slide box is injection-molded

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of durable polypropylene plastic with luted inner walls for insertion of slides (Fig. 1). These boxes, made by Marin Laboratory Supply (P.O. Box 4019, San Rafael, CA 94903, USA), cost only US \$35.00 a gross (144).

Each box measures 83 mm (3 1/4"), 29 mm (1 1/8"), and 16 mm (5/8") deep. A single box holds five standard microscope slides. Slides are easily inserted, removed, and protected with a snap-top, positive lock.

### For pinned insect collections

The following discussion refers to drawers and trays of the United States National Museum (USNM) system cabinets used at the Canadian National Collection (CNC) but applies as well to the California Academy of Sciences (CAS) or the Cornell University (CU) system cabinets which are slightly broader.

The MLS slide boxes are especially convenient for type material or other important reference specimens. For safest curation, the specimen is pinned in a separate small tray preceding the tray with the slide-mounted material. If one wants to save space, the original specimen can be pinned on the left side of a 4x1 tray whereas the slide box containing the pertinent slide(s) is placed on the right side; it is advisable to secure the slide box with insect pins to avoid side movements of the slide box with the tray. The MLS slide boxes are transparent enough that the top slide label(s) can be read through the sides (Fig. 2). Therefore, slides can be incorporated directly without any rewriting of labels. Slides of the same taxon are stored together. Specimens with structures mounted on slides are pinned in a tray of appropriate size preceding the tray with slide boxes. The slide holding capacity of the USNM system trays is:

4"x1" tray: 5 slides (Fig. 1)

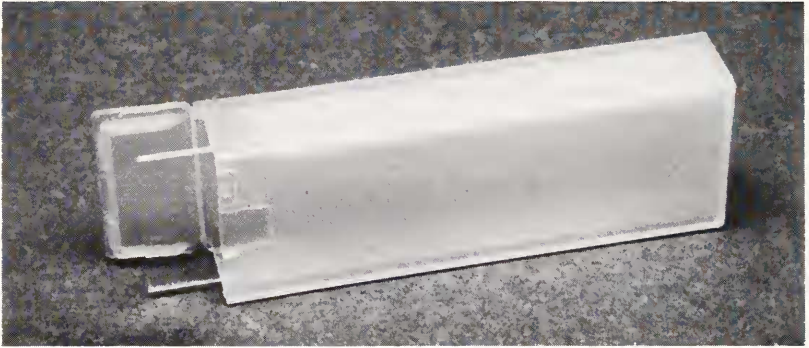
4"x2" tray: 10-15 slides

4"x4" tray: 25-30 slides (Fig. 3)

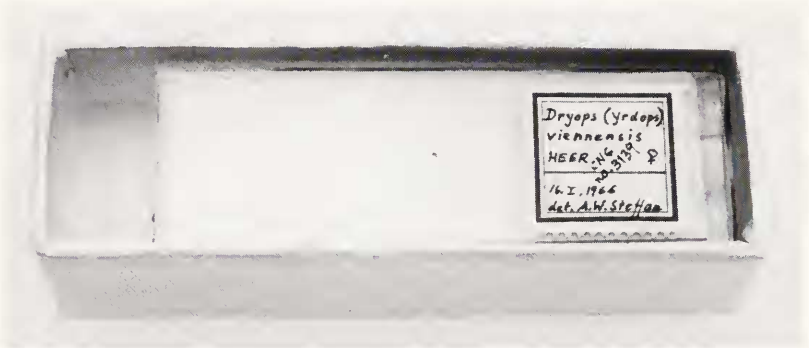
4"x8" tray: 55-60 slides

The maximum slide holding capacity is reached when slide boxes lay on the side; in that case a general label should be attached to the side to identify the slide box contents; self-stick labels are the most convenient for this purpose. This additional work can be eliminated by removing one box and placing another horizontally for instantaneous access to the label of the slide inserted at the top of the slide box. It must be mentioned here that this method is not recommended if slides are not completely dried because cover slips and structures in the medium will eventually slide down. The easiest way to avoid these eventual problems is to place all the slide boxes horizontally inside the trays.

After all slide boxes have been properly placed in appropriate trays they are incorporated with the pinned collection and handled as regular trays filled with insects (Fig. 4).



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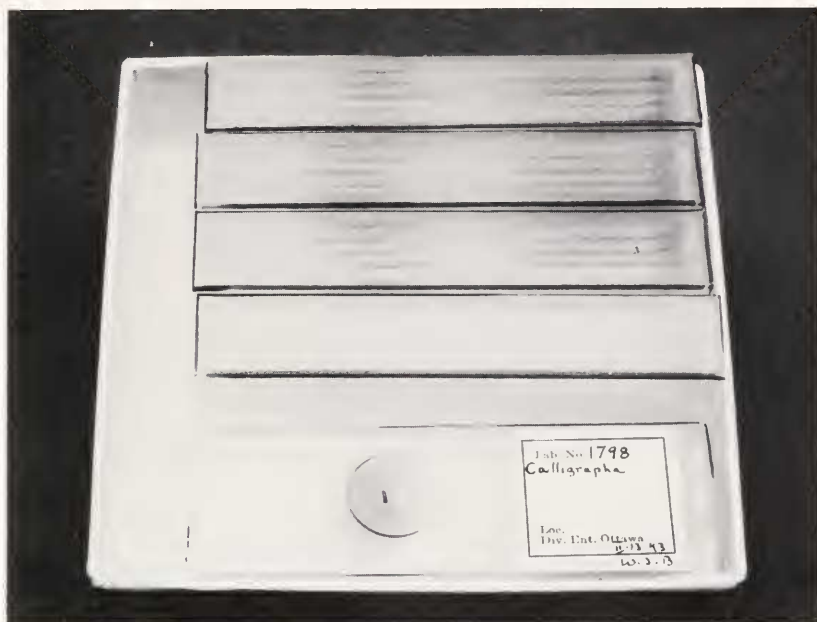


2

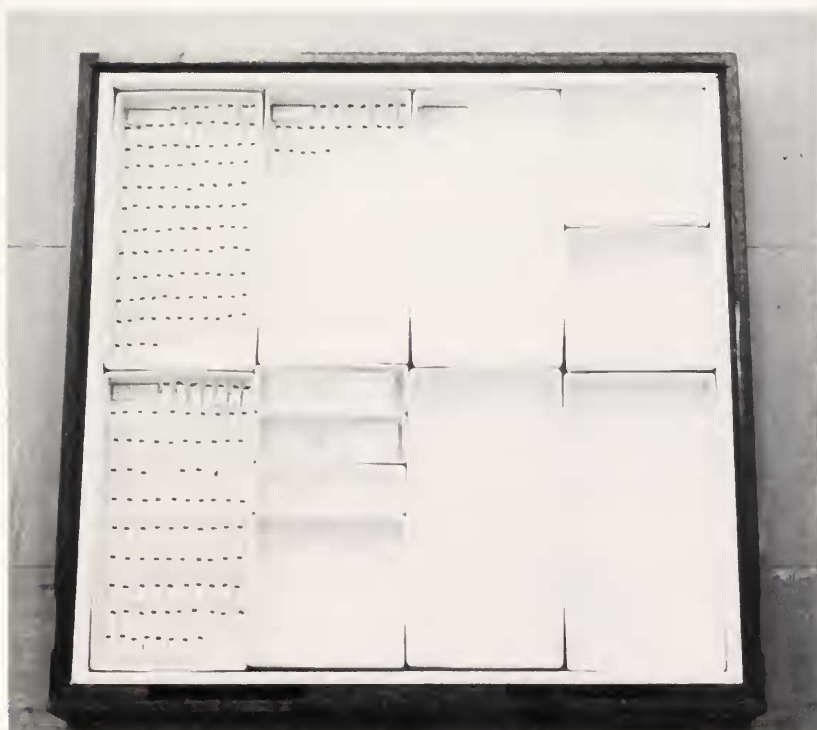


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Figures 1-5. 1. Sample of a Marin Laboratory Supply microscope slide box. 2. Slide with genitalia of a beetle mounted on it and placed in small insect tray; the data of the label are readily legible through the box plastic. 3. Larger insect tray containing 25 slides (5 slides a box); one microscope slide box is placed horizontally to show the label of a slide. 4. Example of slides boxes incorporated with insect trays. 5. Example of slide boxes incorporated with insect vial rack.



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Of course, there must be some sort of coding to associate original specimens and mounted parts, but since both are placed side by side in the collection, their association is very easy without searching through hundreds of slides stored in separate slide cabinets. On the other hand, the curation of slides with MLS slide boxes is no better than any other systems if slides are not properly associated, coded, or organized. If correctly used, they are, in my opinion, superior to other existing systems in the curation of slide-mounted material and their incorporation with main pinned specimens or with collections preserved in alcohol.

#### For material stored in alcohol

The procedures explained below apply to alcohol collections stored in vial racks as in the CNC (Fig. 5). The main advantage of this system is the possibility of retrieving single vials very quickly, much faster than when vials are stored together in large jars filled with alcohol.

The vial rack system also offers the possibility of keeping the material mounted on slides (abdomen of Ephemeroptera, Plecoptera, Chironomidae; mandibles of larvae; various appendages for compound microscope study, etc. . .) side by side with the associated specimens preserved in alcohol. The curation of slide-mounted material within the vial rack is less expensive than the purchase of separate slide cabinets. The MLS slide boxes prove again to be excellent for the curation of this kind of slide-mounted material, provided it is completely dried, otherwise drifting of cover slips is very likely to happen.

The slide-mounted material is properly separated, associated with the specimens preserved in alcohol and placed in slide boxes. The original specimens preserved in alcohol are placed first in the vial rack, followed by the slide box with the proper associated slide mounted parts. The slide boxes, 2 mm thinner than the diameter of 3 dram vials (18 mm) utilized in the CNC, fit perfectly in racks. Again, labels of the slides can be read directly through the sides of the slide boxes.

#### CONCLUSION

Not only are the new MLS slide boxes durable, safe, and inexpensive, but their use allows the incorporation of slide mounted material with main pinned or alcohol collections. At the same time, the elimination or the simplification of the code systems reduces the risk of future confusion. Finally, the side by side arrangement of original specimens and their slide mounted dissected parts provides the fastest way to retrieve both.

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